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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,799	12/21/2001	Yushi Horiuchi	047297-0126	3842

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FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

BAHTA, ABRAHAM

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/06/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,799

Applicant(s)

HORIUCHI ET AL.

Examiner

Abraham Bahta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 6-17 and 20-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1 and 2 is/are allowed.
- 6) ☐ Claim(s) 3-5, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Applicant's election of Group I in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MEP. § 818.03(a)).

Rejoinder of non-elected claims will be considered upon indication of allowable subject matter pursuant to MEP. 821.04

Abstract

The abstract should be a brief narrative of the disclosure as a whole in a single paragraph.

Specification

A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

The disclosure is objected to because of the following informalities.

Claims 3, 4, 5, 18-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a silicon/silicon carbide composite comprised of 45 to 75 weight % of silicon and 25 to 55 weight % of silicon carbide, wherein the silicon carbide is formed from an assembly of fibers each having a thickness of 150 micrometers or less and a length of 0.8 to 3.5 mm and wherein the silicon/silicon carbide composite has a silicon carbide film having a thickness of 30 to 500 micrometers formed on the surface thereof, does not reasonably provide enablement for the composite to include a dummy wafer and a semiconductor heat

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treatment member as recited in claims 3-5 and 18-19. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. .

The specification on page 8 paragraphs 2-3 describes a composite formed with a silicon carbide film having a thickness of 30 to 150 micrometers on the surface thereof to constitute a dummy wafer having a total thickness of 0.5 to 1 mm. Therefore, it is the Examiner's understanding that the composite is a dummy wafer; however, claims 3 and 18 recite the composite includes a dummy wafer. The claims should be redrafted to indicate the composite is a dummy wafer. Further, the specification on page 12 paragraph 2 recites " if the length is less than 0.8 mm, it is difficult to obtain a sufficient mechanical strength as a semiconductor heat treatment composite and it is preferable to have a length of 1.5 mm from the view point of obtaining a member of higher strength" and on page 13, last paragraph the specification recites the composite has been worked in advance in to form a desired semiconductor heat treatment member. It is the Examiner's understanding that the composite is a semiconductor heat treatment member, yet claims 4, 5 and 19 recite the composite includes a semiconductor heat treatment member. Therefore, it is requested that the entire specification should be reviewed for similar problems and applicant submit a new specification of the invention in proper idiomatic English and of the manner and process of making and using the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains.

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Claim Rejections - 35 USC § 112

Claims 3-5 and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-5 and 18-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, 18 it is not clear if the composite is a dummy wafer or not. Further, it is not clear how the composite includes a dummy wafer.

In claim 4-5 and 19, it is not clear if the composite is a semiconductor heat treatment member or not. Further, it is not clear how the composite includes a semiconductor heat treatment member.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steible et al (USP 6,258,737).

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US Patent 6,258,737 teaches a silicon/silicon carbide composite comprising a mass of silicon carbide-containing fibers bundles in tows and impregnating the silicon carbide-containing fibers with slurry composition containing at least one high char yield resin selected from the group consisting of a carbon forming resin, a ceramic forming resin and mixtures thereof; forming the impregnated mass of fibers into a complex shape of a preselected preform; and then infiltrating the preform with a molten silicon wherein the fibrous material comprises at least about 5% by volume or at least about 10% by volume of the composite and the matrix contains a silicon carbide phase in an amount of about 5% to 95% by volume, or about 10% to 80% by volume and the matrix may contain an element silicon phase in an amount of about 5% to 50% by volume of the composite. See col. 3, lines 1-45 and col. 7, lines 48-55. The diameter of the fibers may be about 0.1 to 40 micrometers . See col. 4, lines 2-3.

The reference does not require the exact weight % of silicon or silicon carbide present in the composite as recited in claim 1, however, since the reference teaches the silicon carbide matrix may have a silicon carbide phase form about 10% to 95% and an elemental silicon phase from about 90% to 5%. See claim 10. Further, a silicon carbide coating having a thickness of about 0.1 to about 4.0 micrometers may be provided, (see col. 5, lines 4-25) it would have been obvious to one of ordinary skill in the art at the time of the invention was made to vary or adjust the weight/volume of the silicon and silicon carbide, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 6,576,076 teaches a fiber-reinforced silicon carbide composite and infiltrating molten silicon into the open pores of the sintered composite. The references alone or in combination fail to teach or suggest a silicon/silicon carbide composite comprised of 45 to 75 weight% of silicon and 25 to 55 weight% of silicon carbide wherein the silicon carbide is made from an assembly of fibers each having a thickness of 150 micrometers or less and a length of 0.8 to 3.5 mm. The surface of the silicon/silicon carbide composite comprises a silicon carbide film having a thickness of 30 to 500 micrometers. The contents of silicon and silicon carbide in the silicon/silicon carbide composite are required to be within the range mentioned above in order to reduce the difference of thermal expansion coefficients between the composite and the silicon film and avoid exfoliation of the silicon film and production of particles.

Any inquiry concerning this communication should be directed to Abraham Bahta at telephone number (703) 308-4412.


The Examiner can normally be reached Monday-Friday from 11:30 AM -8:00 PM (EST).

If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor Deborah Jones, can be reached on (703) 308-3822.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

A. Bahta

07/21/03


DEBORAH JONES
SUPERVISORY PATENT EXAMINER